

REMARKS

In the Office Action, the Examiner rejected claims 1-8, 11, 12, 14, 15 and 21. Claims 9, 10, 13, 16, and 17 are withdrawn from consideration. By the present Response, Applicants have amended claims 1, 14, and 21 to clarify features of the present technique, and amended claim 12 to correct a typographical error. Further, Applicants have cancelled claims 7 and 17 to incorporate the subject matter of these claims into their respective base claims. In addition, Applicants have cancelled claim 11 due to incorporation of its subject matter into independent claim 1 in the previous Response. Lastly, Applicants have added new claims 22-25 to clarify features of the present technique. No new matter has been added. Upon entry of the amendments, claims 1-6, 8-10, 12-16, and 21-25 will be pending in the present patent application. Reconsideration and allowance of all pending claims are respectfully requested.

Claim Objection

The Examiner objected to claim 11 under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. However, this rejection is moot in view of the cancellation of claim 11.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 1-5, 7, 11 and 21 under 35 U.S.C. 103(a) as being unpatentable over Cousin et al. (U.S. Patent No. 4,643,857, hereinafter "Cousin") in view of McLeod (U.S. Patent No. 5,922,255, hereinafter "McLeod"); claims 6, 8, 14 and 15 as being unpatentable over Cousin in view of McLeod and Kaspe (U.S. Patent No. 4,525,319, hereinafter "Kaspe"); and claim 12 as being unpatentable over Cousin in view of McLeod and Bartlett et al. (U.S. Patent No. 5,164,419, hereinafter "Bartlett"). Claims 1, 14, and 21 are independent. Applicants respectfully traverse these rejections.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). To establish a *prima facie* case, the Examiner must show that the combination includes *all* of the claimed elements, and provide a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Further, it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. § 2145. For example, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); see M.P.E.P. § 2143.01.

Independent Claims

Independent claim 1, as amended, recites, *inter alia*, wherein said polymer foam has a density of about 16 kg per cubic meter to about 320 kg per cubic meter.” Similarly, claim 14, as amended, recites, *inter alia*, a “wherein said cured polyurethane foam has a density of less than about 320 kg per cubic meter.” Lastly, independent claim 21 recites, *inter alia*, “wherein the cured support foam comprises a density of less than about 320 kg per cubic meter.”

Conversely, the Cousin reference explains that the density of the polyurethane foam “is chosen in dependence on the final weight the racket is to have” and *not* selected based on stabilization of the Cousin element. *See* Cousin, col. 3, line 66 – col. 4, line 1. Further, the Cousin reference does *not* disclose density values of the polyurethane foam. The Cousin reference teaches that the overall density of the Cousin tennis racquet is 0.9 specific gravity or 900 kg per cubic meter. *See* Cousin, col. 3, lines 61-62. Therefore, given typical densities of the Nylon and polyamide materials (e.g., 1100 kg per cubic meter) employed in the Cousin tennis racquet, Applicants believe that the density of the Cousin foam well exceeds 320 kg per cubic meter, and thus, falls outside of the claimed range. Nevertheless, again, Cousin fails to teach *any* value of foam density, much less a value of foam density that falls within the claimed range. *See* Cousin, col. 3, line 66 – col. 4, line 1. McLeod does not provide any teaching as to a polymer foam capable of obviating this deficiency of Cousin. Accordingly, independent claims 1, 14, and 21, and their dependent claims, are believed to be patentable over the cited combination of Cousin and McLeod. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-5, 7, and 21 under 35 U.S.C. § 103(a), and allowance of the claims.

Dependent Claims

The dependent claims are believed to be allowable by virtue of their dependency on an allowable base claim. Further, the dependent claims are also believed to be

patentable because of the subject matter they separately recite. For example, dependent claim 3 recites “wherein said polyurethane foam is rigid closed-cell foam, semi-rigid closed-cell/open-cell foam or flexible open-cell foam.” In contrast, neither Cousin (nor McLeod) teach or suggest such properties of foam. *See, e.g.,* Cousin, col. 3, line 66 – col. 4, line 1.

Improper Combination - Lack of Objective Evidence of Reasons to Combine

In addition, the Examiner has not shown the requisite motivation or suggestion to modify or combine the cited references to reach the present claims. As summarized above, the Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). In the present rejection, the Examiner combined the cited references based on the *conclusory and subjective statement* that it would have been obvious “to use polyvinyl chloride as the thermoplastic matrix material for the carbon fibers in the process of Cousin et al. as taught by McLeod to provide a racket frame made from a low-cost yet strong material as taught by McLeod.” *See* Final Office Action, page 4. Accordingly, Applicants challenge the Examiner to produce *objective evidence* of the requisite motivation or suggestion to combine the cited references, or remove the foregoing rejection under 35 U.S.C. § 103.

Improper Combination – Cousin and McLeod Teach Away From One Another

In addition to the complete lack of objective evidence, Applicants stress the cited references teach away from one another and, therefore, are not properly combinable. *See In re Grasselli*, 713 F.2d 731 at 743. The cited references teach contrastingly different principles of operation, which would change if the cited references were combined as suggested by the Examiner. As summarized above, a proposed modification or combination of references is entirely improper and insufficient to support a *prima facie*

case of obviousness, where the proposed modification or combination would change the principle of operation of the cited reference.

The primary reference, Cousin, teaches a principle of operation of *extruding* engineering performance polymers, such as nylon, polyamide, polycarbonates, and polyacetals. *See* Cousin, col. 5, lines 37-49. The Cousin reference expressly teaches away from *injection molding* of polymers due to asserted limitations on material processing and properties. *See* Cousin, col. 5, lines 37-49. In direct conflict, the McLeod technique *requires injection molding*. *See, e.g.,* McLeod, Abstract. Further, McLeod is directed to the processing of recycled low-cost materials (e.g., polypropylene) and not to processing the performance polymers as taught by Cousin. *See, e.g.,* McLeod, col. 1, lines 31-33 and 50-67; col. 4, lines 48-50. In sum, the Cousin reference teaches away from both the McLeod injection molding technique and the associated McLeod recycled low-cost thermoplastics. In view of these contrasting different principles of operation and intended purposes, the Examiner's proposed combination of the Cousin and McLeod references is absolutely improper and cannot stand. The Federal Circuit has warned that the Examiner must not, "fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *In re Dembiczak*, F.3d 994, 999, 50 U.S.P.Q.2d 52 (Fed. Cir. 1999) (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)).

For these reasons, the Applicants respectfully requests withdrawal of the foregoing combination the corresponding rejections under 35 U.S.C. § 103.

Remaining Dependent Claims

To reject dependent claims, the Examiner combined the Kaspe reference with Cousin and McLeod, and also combined the Bartlett reference with Cousin and McLeod. However, the Kaspe and Bartlett references fail to obviate the deficiencies of Cousin and

McLeod discussed above with regard to independent claims 1, 14, and 21. Therefore, the dependent claims because of their dependency on an allowable base claim. Accordingly, Applicants respectfully request the Examiner withdraw the rejections and allow the claims. Further, again, the dependent claims are believed to be patentable by virtue of the subject matter they separately recite. For example, dependent claim 6 recites wherein said second temperature is at least about 10 degrees Celsius less than the heat deflection temperature of the preformed polymer extrusion. In contrast, the cited references do not disclose a specific increment of cooling below a heat deflection temperature.

Improper Combination – Cousin and Kaspe Teach Away From One Another

The Examiner relied on Kaspe to teach heating temperatures. *See* Final Office Action, page 5. However, Applicants emphasize that the Cousin and Kaspe references teach away from one another and, therefore, are not properly combinable. The Cousin reference teaches heating the Cousin plastic element to its softening temperature. *See* Cousin, col. 55-56. In stark contrast, the Kaspe reference teaches that the Kaspe plastic pipe is heated above ambient but only to a temperature *below the softening temperature* of the pipe. *See* Kaspe, col. 1, lines 29-35 and 59-61; *see also* col. 4, lines 2-7 (“The temperature of the oven will vary upon such factors as the thickness of the pipe, and the kind of resin used and so on but it should be substantially higher than ambient temperature and *lower than the softening temperature* of the material.”) (emphasis added). In view of these contrasting different principles of operation, the Examiner’s proposed combination of the Cousin and Kaspe references is absolutely improper and cannot stand. For these reasons, the Applicants respectfully requests withdrawal of the foregoing combination the corresponding rejections under 35 U.S.C. § 103.

New Claims

By the present Response, new dependent claims 22-25 are added. Applicants respectfully assert that none of the prior art references relied upon by the Examiner, either

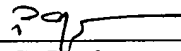
separately or in combination, teach or suggest features recited in these new claims. Accordingly, new claims 22-25 are believed to be in condition for allowance by virtue of their dependency on an allowable base claim and because of the subject matter they separately recited. Applicants respectfully request consideration of these new dependent claims.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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